WE CLAIM AS OUR INVENTION:

1. A method for processing a volume dataset that represents at least one tubular vessel and an environment of the vessel, said method comprising the steps of:

(a) defining an operating point;

(b) in a computer, electronically determining multiple slice planes containing said operating point;

(c) in said computer, electronically determining, for each of said slice planes, a sectional area enclosed by the vessel in the respective slice plan;

(d) in said computer, electronically determining the slice plane, among said multiple slice planes, wherein the sectional area is a minimum; and

(e) in said computer, electronically determining a working slice plane based on the slice plane containing the minimum sectional area.

2. A method as claimed in claim 1 comprising in said computer, electronically determining a center of gravity of the minimum sectional area and defining a new operating point in said working slice plane based on said center of gravity.

3. A method as claimed in claim 2 comprising defining said new operating point as a new operating point between the initially defined operating point and the center of gravity.

4. A method as claimed in claim 1 comprising the additional steps of:

manually entering tilt commands into said computer; and

in said computer, tilting said working slice plane around respective axes according to said tilt commands.

5. A method as claimed in claim 4 comprising entering said tilt commands into said computer via an input unit selected from the group consisting of a joy stick, a computer mouse, and cursor keys of a computer keyboard.

6. A method as claimed in claim 1 comprising the additional steps of:

manually entering shift commands into said computer;

in said computer, electronically redefining said operating point according to said shift commands, with a connecting line between the operating point defined in step (a) and a redefined operating point proceeding perpendicularly to said working slice plane; and

in said computer, electronically redetermining said working slice plane by repeating steps (a) through (e) with said redetermined operating point as the operating point in step (a).

7. A method as claimed in claim 6 comprising entering said shift commands into said computer via an input unit selected from the group

consisting of a joy stick, a computer mouse, and cursor keys of a computer keyboard.

8. A method as claimed in claim 1 comprising in said computer, determining a perspective projection of said volume dataset proceeding from a projection center into an image plane, and displaying said perspective projection on a viewing device.

9. A method as claimed in claim 8 comprising displaying said working slice plane in said perspective projection on said viewing device.

10. A method as claimed in claim 8 comprising displaying a section through said volume dataset defined by said working slice plane on said viewing device.

11. A method as claimed in claim 8 comprising:

via said computer, manually prescribing a picture element of said image plane;

in said computer, electronically determining a projection ray based on said projection center and said picture element;

in said computer, electronically determining an intersection of said projection ray with the vessel; and

in said computer, electronically determining said operating point based on said intersection.

12. A method as claimed in claim 11 wherein the step of prescribing said picture element comprises selectively positioning a cursor on said viewing devivce and entering an enter command via said computer.

13. A method as claimed in claim 1 wherein step (a) comprises defining a plurality of candidate operating points and wherein said computer executes steps (b), (c), (d) and (e) for each of said candidate operating points, thereby obtaining a plurality of minimum sectional areas, and comprising the additional steps of:

in said computer, electronically determining a characteristic value for each of said minimum sectional areas; and

selecting one of said candidate operating points as the operating point for determining said working slice plane in step (e) by evaluating the respective characteristic values of the plurality of minimum sectional areas according to a predetermined evaluation criterion.

14. A method as claimed in claim 13 comprising employing a value associated with each sectional area, as said characteristic value, selected from the group consisting of area, dimension, minimum expanse and maximum expanse.

15. A method as claimed in claim 13 wherein the step of selecting said operating point from among said candidate operating points comprises selecting an operating point as the operating point for use in etep (e) for which

the characteristic value of the corresponding minimum sectional area is a minimum.

16. A method as claimed in claim 13 comprising, for each of the candidate operating points, displaying said characteristic value as a function of the respective candidate operating point on a viewing device.

17. A method as claimed in claim 13 comprising:

via said computer, manually prescribing a starting point and an ending point;

in said computer, electronically determining a slice plane having a minimum sectional area enclosed by the vessel with regard to said starting point, and electronically determining a different slice plane having a minimum sectional area enclosed by the vessel with regard to the ending point; and

selecting said candidate operating points as points with respect to the vessel disposed between said starting point and said ending point.

18. A computer program product loadable into a computer for causing said computer to, for a defined operating point:

determine multiple slice planes containing said operating point;

determine, for each of said slice planes, a sectional area enclosed by the vessel in the respective slice plan;

determine the slice plane, among said multiple slice planes, wherein the sectional area is a minimum; and

determine a working slice plane based on the slice plane containing the minimum sectional area.